

# Future Healthcare of Malaysia

UNU-IIGH Meeting Report,  
August 2020

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United Nations University – International Institute for Global Health (UNU-IIGH), Kuala Lumpur, Malaysia is the designated UN think tank on global health, serving as a policy translation hub for UN member states, agencies and programmes.

# Preface

In early 2020, UNU-IIGH embarked on a journey to better understand the field of futures and foresight and to examine the potential value to be garnered from its integration into our work.

‘Futures’ is defined as “a broad academic and professional field”, and ‘foresight’ as an approach to thinking “systematically about the future to inform decision-making today”. Adopting a futures mindset and implementing foresight methodologies enable us to break free of the constraints of the “now” to collectively imagine what could come “next”. By revisiting the past through the lens of hindsight and using foresight to collectively envisage an array of potential futures, many of which are not explored in traditional planning processes, discussions can yield valuable insights that can in turn be used to inform decision-making in the present and contribute to the the development of agile and adaptive policy environments.

At the start of this process, we made three recommendations to underpin our journey and support sustained, critical, and holistic applications of futures thinking and foresight approaches. These were to:

1. Cultivate ‘pracademics’: build a futures and foresight practice that combines a familiarity with the existing literature documenting conceptual and methodological developments in adjacent fields, opportunities to learn from experienced practitioners, and hands-on practical exposure.
2. Implement futures and foresight critically: embed processes to document and reflect on the experiences of integrating a futures and foresight lens and ensure that approaches align with foundational values of the institution, including respect for a diversity of opinions, contextualised solutions, and the advancement of equity.
3. Integrate foresight as part of a ‘jigsaw’ puzzle approach: augment and enhance existing research capacities with futures and foresight, systems thinking, and design thinking to develop, deploy, and iterate research outputs and policy recommendations.

Held in August 2020, the ‘Future Healthcare of Malaysia 2030’ meeting was UNU-IIGH’s first experience of futures and foresight in practice. The main objective of the two-day in-person workshop was to introduce the concept of foresight-based planning to the Malaysian Ministry of Health and support activities to encourage health systems strengthening. The workshop was co-convened by the Ministry of Health Malaysia and the World Health Organisation’s country office for Malaysia, Brunei Darussalam, and Singapore. Additional meeting co-design and facilitation was provided by futures and foresight experts from the Malaysian Foresight Institute, myForesight, and the United Nations Development Programme’s country office. UNU-IIGH led the development of strategic intelligence briefs to inform the meeting and assisted with meeting facilitation.

Participants represented several government ministries, including the Ministry of Rural and Regional Development and the Ministry of Women, Family, and Community Development, in addition to departments within the Ministry of Health. Civil society and corporate sector participants were also in attendance. A broad range of stakeholders were invited to reflect a whole-of-government and whole-of-society approach to the future of health care.

This workshop:

- Provided an opportunity to understand the impact employing a futures lens has on research questions, the differences in the type of research conducted and information sought, and to develop strategic intelligence briefs to inform futures discussions.
- Enabled the UNU-IIGH team to learn how to facilitate several commonly used foresight methodologies, including identifying drivers of change, developing futures wheels, and using a futures zoo to interrogate critical signposts/early warning signs that may interact with identified drivers to alter potential futures.
- Raised questions about how a futures lens and foresight methodologies can complement and strengthen rather than replace existing institutional toolkits and provided clarity on what an integrative approach might look like as opposed to a ‘silver bullet’ approach.

Looking forward, UNU-IIGH will continue to deepen its practice through the identification of opportunities to strengthen internal futures and foresight capacity, via the (co-)design and delivery of futures workshops, and continued engagement with the literature and other experts in the field.

**Other reports in this series include:**

- [Futures and Foresight as Tools for Global Health](#) (2021)
- [Futures of Gender and Global Health 2030](#) (2022)
- [Enabling Environments to Advance Gender Equality in Health](#) (2023)

WORLD HEALTH ORGANIZATION  
COUNTRY OFFICE FOR MALAYSIA, BRUNEI DARUSSALAM AND  
SINGAPORE

English only

MEETING REPORT

FUTURE HEALTHCARE OF MALAYSIA 2030

Convened by:

MINISTRY OF HEALTH MALAYSIA  
AND  
WORLD HEALTH ORGANIZATION  
COUNTRY OFFICE FOR MALAYSIA, BRUNEI DARUSSALAM AND  
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## NOTE

The views expressed in this report are those of the participants of the workshop on Future Healthcare of Malaysia 2030 and do not necessarily reflect the policies of the conveners.

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## SUMMARY

The workshop on Future Healthcare of Malaysia 2030 was planned against the backdrop of the COVID-19 pandemic. The global spread of COVID-19 has forced countries around the world to rapidly adjust their health systems in an attempt to mitigate the spread of the disease and to address the health impacts within populations. Both the speed and scale of these responses emphasize the importance of building resilient and responsive health systems. Integrating a foresight approach to planning can play a valuable role in achieving this goal. The main objective of the workshop was to introduce the concept of foresight-based planning to the Ministry of Health Malaysia.

Applying foresight methods to traditional planning processes presents an opportunity for policy-makers to envisage short-, medium- and long-term future scenarios and consider adaptations to existing plans to help weather shocks or maximize opportunities. STEEP and PEST are popular foresight and horizon-scanning methods used by businesses for external environment analysis for the short and long range, and for local and global issues. STEEP categories (social, technological, environmental, economic and political factors) were used in this foresight workshop to generate insights.

The workshop was attended by policy-makers from across the Malaysian government. It followed an inter-ministerial seminar on Malaysia's progress with respect to universal health coverage (UHC) and Sustainable Development Goals, which was convened by the Planning Division, Research and Technical Support, within the Ministry of Health. The workshop offered an opportunity to introduce policy-makers with health-related portfolios to the foresight methodology.

Drivers of change for health care in 2030 were identified, and nine areas were prioritized: 1) leadership and governance; 2) changing nature of the health-care workforce; 3) cost of and demand for health care; 4) economic growth and business ecosystems; 5) technology advancement and digitalization; 6) urbanization and industrialization; 7) disaster and pandemic preparedness; 8) ageing population; and 9) access to health care.

Disowned and desired futures were discussed, and critical signposts/early warning signs that may interact with identified drivers to alter the potential future were identified.

The next step would be to seek an agreement with the Ministry of Health Planning Division to engage on further project development, design and implementation of a health futures strategic dialogue, including the evaluation and communication in collaboration with WHO and partners.

# 1. INTRODUCTION

## 1.1 Background

Applying foresight methods to traditional planning processes presents an opportunity for policy-makers to envisage short-, medium- and long-term future scenarios and consider adaptations to existing plans to help weather shocks or maximize opportunities. Scenario-building helps policy-makers to imagine various alternative futures and ways to build policies and programmes to prepare for them. Such scenarios describe potential futures, help shape a common vision, and assist in designing and implementing a resilient transformation agenda. The capacity to identify potential drivers of change, and emerging challenges or opportunities, and will enable policy makers to develop strategies to adapt to and embrace change. Essentially, if the longer-term vision is clear, then shorter-term planning will be more effective in preparing health systems for the future.

This workshop was planned against the backdrop of the COVID-19 pandemic. The global spread of COVID-19 has forced countries around the world to rapidly adjust their health systems in an attempt to mitigate the spread of the disease and to address the health impacts within populations. Both the speed and scale of these responses emphasize the importance of building resilient and responsive health systems. Integrating a foresight approach to planning can facilitate in achieving this goal.

This workshop is part of a broader WHO regional strategy to use foresight-based planning approaches to enable Member States to develop and drive a national longer-term transformation agenda for health systems and population health and well-being.

## 1.2 Meeting organization

The workshop was convened in conjunction with a seminar on universal health coverage (UHC) and Sustainable Development Goals (SDG) convened by the Planning Division, Research and Technical Support, Ministry of Health Malaysia and organized in collaboration with the World Health Organization (WHO). The Foresight Institute of the Malaysian Industry-Government Group for High Technology (MiGHT) designed and led the workshop (Annex 1). The United Nations University International Institute for Global Health (UNU-IIGH) and WHO co-produced strategic intelligence briefs, and together, UNU-IIGH, WHO and the United Nations Development Fund (UNDP) Accelerator Lab provided workshop facilitation support.

Participants represented several government ministries, including the Ministry of Rural and Regional Development and the Ministry of Women, Family, and Community Development, in addition to departments within the Ministry of Health. Civil society and corporate sector participants were also in attendance. The broad range of participants were invited to reflect a whole-of-government and whole-of-society approach to the future of health care (Annex 2).

### 1.3 Meeting objectives

The objectives of the workshop were:

- 1) to introduce the concept of foresight-based planning to the Ministry of Health,
- 2) to provide scenarios to be considered for development of the Malaysia–WHO Country Cooperation Strategy 2021–2025; and
- 3) to identify areas for further exploration in subsequent workshops, partnerships and engagements between the Ministry of Health and WHO in Malaysia.

It is hoped that this workshop will generate interest within the Ministry of Health to apply foresight approaches to their planning processes as well as inform the ongoing cooperation between the Ministry of Health and the WHO Malaysia country office.

## 2. PROCEEDINGS

### 2.1 Identifying drivers of change

On the first day, the Strategic Policy and Planning Unit of the Ministry of Health held a seminar to present Malaysia’s progress against the health-related SDG indicators. Immediately following the final session, Mr Rushdie Abdul Rahim (MiGHT) introduced participants to the foresight methodology by focussing on the approach’s strategic value and sharing examples from other countries. He then posed three questions for attendees to answer via Mentimeter using role play (Box 1).

<b>Box 1. Role play</b>
Role play is used to instigate thinking about the future or “big picture” thinking. Participants were asked to imagine that they were the health minister. In that role, participants were asked to identify the areas on which they would focus to transform for the future.

In this particular role play, participants were asked the following questions:

- What “new” thing would you like to pursue?
- What would you like to “shift”?
- What would you “discontinue”?

From this process, the workshop facilitators sought to identify common areas of interest for discussion. Subsequently, participants were asked what would drive the transformation or changes that they had listed.

The collated results, presented to workshop attendees on the following day, are illustrated as word clouds in the following figures.<sup>1</sup>

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<sup>1</sup> Word clouds have been generated for the purpose of this report and are based on the answers submitted by participants via the Mentimeter platform.

**Fig. 1. What “new” thing would you like to pursue?**

In 2030, what NEW things do you want to see in our healthcare system?



**Fig. 2. What would you like to “shift”?**

What are the SHIFTs that will happen by 2030?



**Fig. 3. What would you like to “discontinue”?**

By 2030, what needs to be DISCONTINUED in our healthcare system?



## 2.2 The STEEP method

STEEP (social, technological, environmental, economic and political factors) and PEST (political, economic, social and technological factors) are popular foresight and horizon-scanning methods used by business analysts for simple scanning and external environment analysis, for short and long range, and local and global issues. STEEP categories were used in this foresight workshop to generate insights.

Following a presentation of the results of the role play exercise, workshop participants assigned themselves to one of five thematic groups based on the STEEP method. The five groups were:

1. Social and values
2. Technology
3. Economy
4. Environment
5. Politics and governance

Each group was led by two facilitators – a methodology expert from MiGHT and a content expert from either UNU-IIGH, UNDP or WHO. Notes were taken by two rapporteurs per group and by participants as part of the workshop activities.



### 2.3 Deep dive into drivers of change

The driving forces for change that will impact our future are defined in Box 2. Participants were asked to discuss the factors they thought could direct or impact Malaysia's health care in 2030.

<b>Box 2. Drivers of change</b>
Drivers were defined as: <ul style="list-style-type: none"><li>• critical forces in the macro-environment that underpin important trends and issues;</li><li>• something (trends) with the potential to bring about significant change in the future; and</li><li>• variables that have the potential to change the future in significant ways but are not very predictable, as they are also dependent on several factors.</li></ul>

The discussion first identified and then shortlisted potential drivers of change, as shown in Fig. 4.

**Fig. 4. Drivers of change**



## 2.4 Futures wheels

Upon identification of a shortlist of drivers, participants were asked to discuss how these drivers might influence the future. Using simple futures wheels (defined in Box 3), participants discussed how each driver of change could potentially impact the future. Subsequently, participants engaged in a World Café,<sup>2</sup> in which representatives of each STEEP group presented their drivers and their imagined futures to **the other thematic** groups. The aim of the World Café exercise was to explore how a given driver could intersect with other drivers and how that might alter outcomes.

### Box 3. Futures wheel

A futures wheel is a visualization of the primary, secondary and tertiary consequences of trends, events and emerging issues.<sup>3</sup> By envisioning the future implications of any critical issue, focal decision or emerging trend, these implications can then be used to inform strategy and action, creating a more robust and resilient outcome.

While all groups used the futures wheel approach to work through an “and then” thought process, they captured the information in a mix of ways. Some produced wheels, while others created a list of consolidated drivers.

Below are examples of futures wheels developed during the workshop (Fig. 5 and 6).

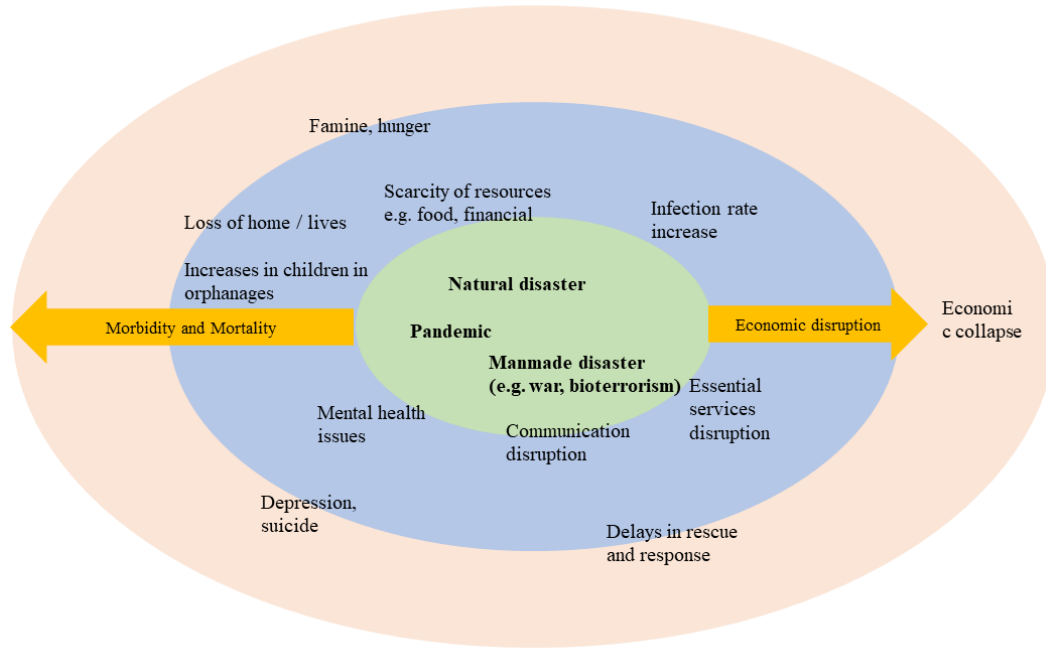
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<sup>2</sup> World Café method, <http://www.theworldcafe.com/key-concepts-resources/world-cafe-method/>

<sup>3</sup> Futures wheels, <https://www.undp.org/content/undp/en/home/librarypage/capacity-building/global-centre-for-public-service-excellence/foresightmanual.html>

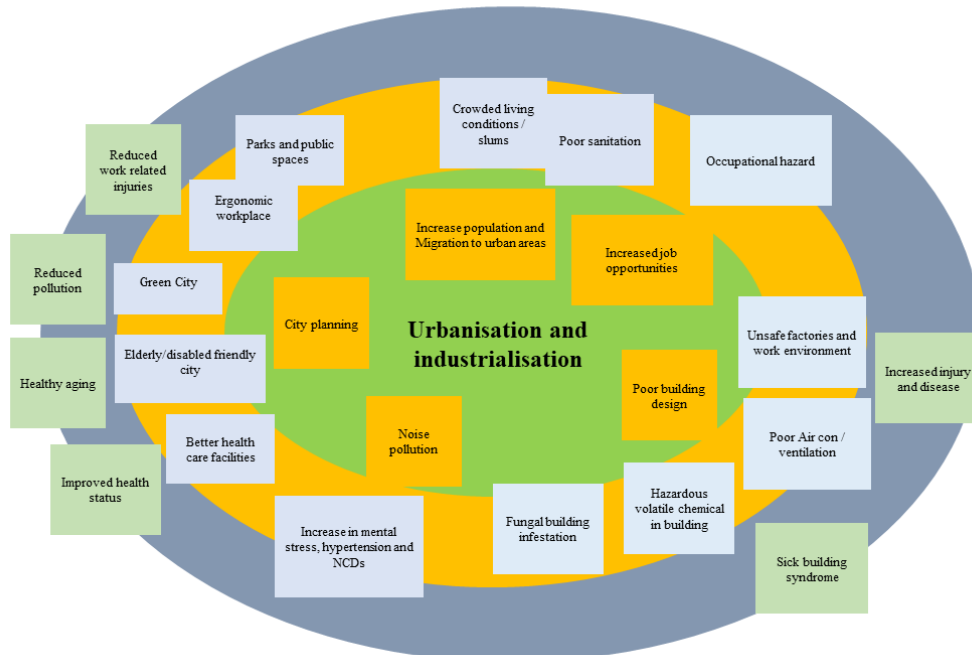
**Fig. 5. Driver: Disaster and/or pandemic**

Driver: Disaster and/or pandemic



**Fig. 6. Driver: Urbanization and industrialization**

Driver: Urbanisation and industrialisation





## 2.5 Creating critical signposts and early warning signs






The futures zoo exercise aimed to identify critical signposts/early warning signs that may interact with identified drivers to alter the potential future (Box 4, Table 1).

### **Box 4. Futures zoo**

Each animal within the menagerie prompted participants to imagine a potential disruption. They were:

- Black swans: unexpected events that have a huge impact on the current way of doing things
- Dodos: events that were once highly relevant but are now extinct
- Peacocks: events that are talked up and hyped but do not have much impact
- Black elephants: events that are well known and have a profound impact but are ignored when imagining futures
- Jellyfishes: events that start innocently but have a terrible long tail and a nasty sting at the end.

**Table 1. Consolidated futures zoo**

					
<b>Social and values</b>	<ul style="list-style-type: none"> <li>• Future pandemic akin to COVID-19</li> <li>• Change of government</li> </ul>	<ul style="list-style-type: none"> <li>• Racial tensions</li> <li>• Klinik1Malaysia</li> </ul>	<ul style="list-style-type: none"> <li>• Robotic surgery (ideal, but the implementation is challenging and may exclude rural and low-income populations)</li> </ul>	<ul style="list-style-type: none"> <li>• Health insurance and coverage</li> <li>• Comprehensive sexual education</li> </ul>	<ul style="list-style-type: none"> <li>• Immunization</li> <li>• Migrant/foreign workers' health</li> <li>• Political will</li> </ul>
<b>Technology</b>	<ul style="list-style-type: none"> <li>• Natural disasters</li> <li>• World war</li> <li>• Digital consultations</li> </ul>	<ul style="list-style-type: none"> <li>• Flying Doctor Services may be obsolete once network access and bandwidth coverage is improved.</li> <li>• Manual patient registration</li> <li>• Communicable diseases that once ravaged communities, e.g. smallpox</li> </ul>		<ul style="list-style-type: none"> <li>• EMR nationwide</li> <li>• Data interoperability</li> <li>• Health-care financing transformation</li> <li>• Health insurance</li> <li>• Breakdown in multilateralism leading to a cold war</li> </ul>	<ul style="list-style-type: none"> <li>• Poor definition of universal health coverage makes the reality of its achievement meaningless</li> </ul>

<b>Economy</b>	<ul style="list-style-type: none"> <li>• Disaster outbreaks</li> <li>• Epidemic or natural catastrophe</li> </ul>	<ul style="list-style-type: none"> <li>• High out-of-pocket (OOP) cost of private health care</li> <li>• mySalam</li> </ul>	<ul style="list-style-type: none"> <li>• Peka B40<sup>4</sup></li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Health-care financing</li> <li>• Lack of interpersonal skills/communication skills due to digitalization</li> <li>• Ageing population</li> <li>• Reducing birth rates lead to demographic shifts inc. reduced working population size</li> <li>• Corruption in health care</li> <li>• Reduced public health spending</li> <li>• Lack of transparency in the govt system</li> </ul>	<ul style="list-style-type: none"> <li>• Climate change</li> <li>• Health and education of migrant/foreign workers</li> <li>• Urbanization</li> <li>• Digitalization</li> <li>• e-commerce</li> <li>• e-health</li> <li>• Artificial intelligence (AI)</li> </ul>
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<sup>4</sup> Peka B40, <https://www.pekab40.com.my/eng>

<b>Environment</b>	<ul style="list-style-type: none"> <li>• Dynamic national and regional politics</li> <li>• Natural and manmade disasters</li> <li>• Bioterrorism (e.g. anthrax)</li> <li>• Orang Asli health census</li> <li>• Undocumented population in Sabah</li> <li>• Emerging diseases (e.g. COVID-19 pandemic)</li> <li>• Dual health-care system</li> <li>• Privatization of the whole health sector</li> <li>• Inadequate health-care funding</li> </ul>	<ul style="list-style-type: none"> <li>• Certain jobs will become extinct due to AI (e.g. radiologist, pathologist)</li> <li>• Virtual post-mortem</li> <li>• Non-technical administrators working in health organization</li> <li>• Single health system</li> <li>• Manually written notes replaced by digital recording (e.g. EMR)</li> </ul>	<ul style="list-style-type: none"> <li>• Big data, machine learning (AI)</li> <li>• KOSPEN<sup>5</sup>, COMBI programme (community empowerment difficult to sustain)</li> <li>• Corruption</li> <li>• AI in the health system</li> <li>• Telehealth (virtual technology)</li> </ul> <p>Telehealth in the health system</p>	<ul style="list-style-type: none"> <li>• Health inequalities, e.g. refugees and migrant workers</li> <li>• Human rights, e.g. LGBT groups</li> <li>• Poor workplace health and safety</li> <li>• Universal health coverage</li> <li>• Health insurance scheme</li> <li>• Limited public health-care funding</li> <li>• Dichotomy of service (restructuring of public-private health care)</li> </ul>	<ul style="list-style-type: none"> <li>• Poverty</li> <li>• Mushrooming of medical/nursing school</li> <li>• Virtual clinic (may lead to high medicolegal cases)</li> <li>• Poor auditing system</li> <li>• Restructuring of health care</li> <li>• Management of solid waste</li> <li>• Health-care financing reforms and discussions</li> </ul>
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<sup>5</sup> KOSPEN, <https://www.infosihat.gov.my/index.php/projek-khas/kospen>

<b>Politics and Governance</b>	<ul style="list-style-type: none"> <li>• COVID-19</li> <li>• Natural or environmental disasters (Sungai Kim Kim, haze, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>• Manual records</li> <li>• KOSPEN</li> <li>• LEAN health care</li> <li>• OBB (outcome-based budgeting)</li> <li>• EKSA (Ekosistem Kondusif Sektor Awam / Public Sector Conducive Ecosystem<sup>6</sup>)</li> <li>• Enhanced primary health care (zoning people according to place)</li> </ul>	<ul style="list-style-type: none"> <li>• Peka B40</li> <li>• MySalam<sup>7</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Health-care workers are overworked &amp; underpaid</li> <li>• Insufficient human resources, e.g. houseman &amp; contract staffs</li> <li>• Evaluation (nobody wants to do or talk about it)</li> </ul>	<ul style="list-style-type: none"> <li>• Substance abuse (e.g. methamphetamine)</li> <li>• Adolescent health (sexual health, teenage pregnancy, etc.)</li> <li>• Mental health (depression, stress, etc.)</li> <li>• Rise of doulas – unsafe home birth</li> <li>• Rise of the anti-vax movement</li> <li>• Aesthetics treatments in beauty spas that pose health risks</li> </ul>
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<sup>6</sup> Public Sector Conducive Ecosystem, <https://www.mampu.gov.my/en/public-sector-conducive-ecosystem-5s-practice>

<sup>7</sup> MySalam, <https://www.mysalam.com.my/b40/info/>

### 3. POST-WORKSHOP SYNTHESIS

After the workshop, the team of facilitators and notetakers from MIGHT, WHO, UNU-IIGH and UNDP undertook a thematic analysis. This process sought to identify common themes of discussion from across the five STEEP groups.

In total, nine themes were identified. Each theme brings together the drivers identified, discussions about the potential future impact of those drivers, as well as the interactions between the different aspects of the macro-environment. They are presented as an imagined future narrative and the potential implications for Malaysian health care in/by 2030.

#### 1. Leadership and governance

The political landscape in Malaysia continues the shift from one of single-party dominance to regular changes in government. Instability stymies the ability of the Ministry of Health to direct the trajectory of Malaysian health care.

- Shorter terms in government lower the risk appetite of policy-makers with the risk that politics, not evidence, guides future health policy.
- The lack of an overarching vision to guide the health agenda in Malaysia creates an issue of continuity that is perpetuated by each leading politician coming in with a vision that is different from his or her predecessor.
- The health-care system continues to undertake broad-scale monitoring, but there is an unwillingness to evaluate outcomes impacting improvement and/or stopping ineffective or no-required programmes and policies.
- Collaboration among intra-governmental and extra-governmental agencies is eroded despite the importance of engaging stakeholders and addressing cross-cutting issues that are beyond the purview of just the Ministry of Health.

#### 2. Changing nature of the health workforce

The introduction of new technologies drastically changes the nature of jobs, and thus the composition, of the health workforce.

- The continued advancement of the fourth industrial revolution sees many low skilled workers replaced by artificial intelligence (AI) and robots.
- Even within tertiary roles, initial assessments are conducted by a combination of AI, robots and 'sensor pods' that allow a physical examination to be conducted either remotely or completely without human involvement.
- Conversely, a whole new range of jobs are created in relation to the technology that now underpins the health system.
- A demographic shift towards an ageing population impacts the composition of the workforce. There are fewer young people to join the health workforce, while an increased retirement age hinders the opportunities for promotion with trickle-down effects throughout the system.

Malaysia continues to experience high levels of talent migration or so-called brain drain.

- Malaysia is geographically located between competing economies – Singapore (efficient) and Thailand and Indonesia (large populations). As such, many Malaysians choose to explore job opportunities in neighbouring countries and beyond.
- This migration of talent negatively impacts the growth of the Malaysian economy, leading to Malaysia being sidelined in the ASEAN region.
- Specifically, within health, the small market size may result in reduced investment. For instance, pharmaceutical companies such as Eli Lilly have overlooked Malaysia as an opportunity for investment and growth.
- A decrease in opportunities contributes to further brain drain.

### 3. Cost of and demand for health care

Economic shocks decrease the fiscal space and subsequently, the national budget allocation for health. They challenge the potential introduction of social insurance schemes, particularly for health.

- Malaysia shifts from a government-based UHC approach to different fees for different people based on ability to pay, leading to an increase in OOP payments.
- An increase in the number of workers within the “gig economy” places sections of society at risk and unable to afford health care.
- A shift towards a ‘fee for service’ creates an imbalance in resource allocation, including between private-public sectors and between rural-urban areas.
- Inequities in service provision may also develop, particularly in areas of health care that show increasing demand, e.g. mental health, NCDs, but generally have long treatment timelines.
- In concert, these factors widen the gap between those who have and those who have not.

### 4. Economic growth and business ecosystem

Malaysia fails to diversify its economy, continuing its reliance on oil, and becomes increasingly uncompetitive in the global market.

- Decompression of economy occurs – industry leaves, foreign investment falls. Malaysia fails to achieve high-income status and, instead, drops from a middle-income to low-income country.
- A decrease in tax revenue negatively impacts technology research and development leads to a reduction in social welfare programmes and decreased investment in health.
- Social unrest ensues and leads to increased crime rates.



*Alternatively:* A major diversification of the economy takes place in order to withstand shocks better.

- Technology and increased urbanization lead to continued growth within the knowledge sector.
- Increasing global nationalism, and the longer-term impacts of COVID-19 on national borders, leads to growth in the agriculture and fisheries sectors as Malaysia seeks to reduce its reliance on imported food goods.
- A growing economy leads to an increased budget available for investment in social welfare programmes and the health system.

#### 5. Technological advancement and digitalization

The Malaysian government embarks on an agenda to make technology affordable and accessible. There is a rapid increase in the rate of tech development and deployment with knock-on impacts in many sectors.

- Within health, huge benefits are realized in terms of the care continuum, health monitoring and patient records.
- The government retains the patents/rights to a majority of the new technology. The return on investment in the digital economy is funnelled back into social welfare including health

*Alternatively:* A national policy of health data governance is absent, resulting in a non-protected data transfer between technological companies, health-care providers and patients.

- Private companies profit from the investments made by the government and also from the data of individuals. The profits are ploughed back into companies rather than into the health system.
- There continues to be a disconnect between public and private health care, locking individuals into an increasingly disparate two-tier system.
- Cyber-security is a concern – What are we giving up in return for (free?) access to an extensive range of digital platforms/services?

As more generations of “digital natives” are born, the divide widens between people who are digitally literate and those who are not.

- An increasing number of services become “digital first”.
- A digital literacy divide between natives and people less familiar with technology negatively impacts the ability of those less literate to benefit from health services.
- This divide is further exacerbated by an ageing society, systemic inequities in resource allocation and education, and geographic variations in investment in and deployment of key infrastructure for tech (e.g. high-speed internet cables).

## 6. Urbanization and industrialization

Urbanization leads to internal population migration, increasing population density, and with it, issues surrounding housing and resource management.

- The rise in the proportion of the national population living in urban slums is attributable to rapid urban growth and uncontrolled migration.
- Poor design and construction of buildings contribute to poor living and working conditions. The lack of attention given to appropriate ventilation and air-conditioning systems contribute to poor indoor air quality, accumulation of volatile organic compounds and fungal growth.
- Environmental pollution and poor lifestyles may have a negative effect on mental and physical well-being of urban populations.

## 7. Disaster and pandemic preparedness

There is a major world event (e.g. world war, meteor strike, other natural disasters) that disrupts global functioning.

- Direct effects include loss of life, displacement of people, disruption of services and infrastructure, threats to security and social disruption.
- Depending on the type of disaster, the impact may also include food insecurity, financial crisis, the transmission of infectious diseases and mental health issues such as depression and suicide.
- This results in a sudden increase in demand which overwhelms capacity (infrastructure, workforce and other resources) and leads to the disruption of essential health care and communication services.
- Breakdown in multilateralism leads to nationalized tech development and the next cold war.

After focussing on noncommunicable diseases (NCDs) and shifting away from infectious diseases, Malaysia (and the world) enters a future where infectious diseases play a more prominent role than expected.

- Environmental degradation leads to a breakdown in boundaries between animal and human populations and an increase in zoonotic diseases.
- Vaccine development becomes increasingly reactive.
- A focus on emerging threats leads to neglect in dealing with known risks, including antimicrobial resistance.
- Pandemics cause acute fiscal shocks (economic disruption) and longer-term economic damage (economic collapse).

## 8. Ageing population

Shifts in Malaysia's population demographic leads to a higher proportion of people in older age groups.

- An ageing population places a greater burden of care on all aspects of society.
- Family support structures become even more critical, requiring provisions to support caregivers, particularly for mental health.

- There is a greater integration of community health workers and traditional healers within the health system to offset some of the burdens of care.
- A decrease in the size of the working population leads to economic loss because of a decrease in people's productivity.
- There is a continued increase in NCD (diabetes, hypertension) prevalence. Changes to the nature of health-care provision and increases in precision medicine and new technology may lead to higher costs of provision against a backdrop of a shrinking tax base.
- Retirement living sector responds to population ageing by designing development retirement villages that are adapted and adaptive to the future of its residents (so-called Smart Cities 2.0), with artificial intelligence, augmented reality, etc. Greater consideration to the lives and the requirements of an ageing population and people with disabilities leads to improved health status and promotes healthy ageing.

#### 9. Access to health care

Social factors continue to prevent the achievement of equal access to health care.

- The economic status of individuals and their households will continue to impact access to health care. For instance, the lack of affordable private health care continues to restrict access to nongovernmental health-care services.
- Racial tensions continue or grow due to inequity.
- Vulnerable populations are uncomfortable accessing health services, particularly non-Malaysians, including but not limited to undocumented migrants and refugees.

Geographical differences between urban and rural communities and the inequalities relating to resource management create hotspots of higher risk.

- Unequal deployment of technology leads to a greater divide between urban and rural populations.
- Rural clinics and health-care facilities are not equipped with the latest technology, resulting in poor care continuity and also referral. This is compounded by poor infrastructure, resulting in disrupted electricity supply and impaired technological use.
- Nurses and allied health professionals in rural settings are not trained to use technology, resulting in paper-pen data storage.

Waiting time – use of technologies from initial patient assessments through to surgical interventions dramatically decreases hospital waiting times.

- The need for certain surgeries decreases or the time taken for surgeries decreases due to new technologies, e.g. 3D printing (bones, organs), new machines (next-generation keyhole surgery, nanobots placed inside the body that are operated externally), AI replacing certain functions entirely.

- However, if certain technologies are incompatible with religious or cultural belief systems, it could lead to the rejection of advancements.
- The opportunity cost of waiting.

Malaysia makes a strong commitment to a people-centred health system.

- Patient engagement and citizen empowerment increases.
- Health literacy of the population increases, leading to improved individual responsibility for health status.
- Technologies are developed that facilitate increased patient/individual control of health; health technology moves from wearables to implantable/injectables, giving dynamic feedback on health status.

#### **4. CONCLUSIONS AND NEXT STEPS**

The foresight-based process could enable Malaysia to develop and drive a national longer-term transformation agenda for health systems and population health and well-being. Further processes are needed to conduct rigorous analysis and debate of change drivers across (geo) political, economic, social, technological, environmental dimensions followed by institutionalization of foresight functions and formulation of long-term agendas for health systems transformation.

The next steps would be to seek an agreement with the Ministry of Health to engage on further project development, design and implementation of an ongoing health futures strategic dialogue including the evaluation and communication in collaboration with WHO and partners. This would also determine the development of the WHO country cooperation strategy 2021-2025.

## Annex 1 – Programme of activities

Future Healthcare of Malaysia 2030

Day 1 – Tuesday, 11 August 2020

Time	Agenda	Methods	Outcome
16:30–16:45	Identifying future agenda New – Shift – Discontinue	Role play	Areas of change for 2030
16:45–17:00	What’s driving the change?	Mentimeter	Potential list of drivers

Day 2 – Wednesday, 12 August 2020

Time	Agenda	Methods	Outcome
9:00–9:15	Brief on foresight and methods to explore the future	Plenary Briefing	A brief understanding of what will transpire & the outcome of the day’s workshop
9:15–10:30	What’s driving the change	Group Discussion	Finalize the drivers of the future of Malaysia’s healthcare
11:00–13:00	Imagining the future of Malaysia’s health care in 2030	Group Discussion	Future Wheels Future of Malaysia’s Healthcare Reimagined
13.00–14:00	<i>Lunch</i>		<i>Well fed, to continue to the next session</i>
14:00–15:00	Exploring multiple futures	World Café	Understanding other worldviews of the futures reimagined
15:00–16:00	Imagining the future of Malaysia’s health care in 2030	Group Discussion: Futures Wheels	Improved scenarios
16:00–16:30	Identifying wild cards and weak signals	Group Discussion: Futures Zoo	Prominent issues to be considered

## **Annex 2 – List of participants**

### **Annex 3 – Disowned and desired futures**

Available upon request from the Ministry of Health Malaysia (name, email) and the WHO Country Office for Malaysia, Brunei Darussalam ([wpmyswr@who.int](mailto:wpmyswr@who.int)).